Commonwealth of Kentucky
Division for Air Quality

PERMIT STATEMENT OF BASIS

TITLE V SYNTHETIC MINOR NO. F-01-042
WILCO REFINING, LLC
ALBANY, KY.
MARCH 14, 2002
KENNETH LIBERTY, REVIEWER
PLANT I.D. # 21-053-00012
APPLICATION LOG # 53856

SOURCE DESCRIPTION:

Wilco Refining, LLC is a petroleum refinery that has accepted permit limits and conditions to make them a synthetic minor. From these permit limits, the VOC PTE is approximately 90 tons per year.

Crude oil is transferred to one of two large fixed roof storage tanks that will have control devices in place per a compliance schedule (180 days after operation begins). The crude oil is heated to a vapor and fed to a distillation tower where fractions of petroleum distilates, gasoline, kerosene, diesel and tar are produced and pumped to separate storage tanks. These storage tanks also have control devices of either an internal floating roof or connected to a blowdown device. The blowdown device and displaced air during the truck loading operation is fed to a flare.

The process heaters use only natural gas or propane; process gas is not burned. There are no cracking operations or sulfur recovery units. There is a sulfur removal unit, two towers in series, just prior to the distillation tower. The sulfur removal towers contain metal shavings which are supposed to remove sulfur, but this is an unproven technology and emission calculations are not clear, possibly non-existent.

Wilco Refining, LLC has not been in operation for several years. The facility was recently sold and is now a privately owned company that also owns an oil-drilling company.

COMMENTS:

The control devices for the crude oil storage tanks have not been determined and is under a compliance schedule. A flare is used to control VOC emissions from the distillate storage tanks and the loading area (displaced vapors from truck loading).

Emissions factors from AP-42 were used for pipeline equipment VOC analysis. A TANKS 4.01 model was used to estimate VOC emissions from each storage tank.

APPLICABLE REGULATIONS:

401 KAR 59:015, New Indirect Heat Exchangers.

401 KAR 59:105, New Process Gas Stream.

401 KAR 63:020, Potentially Hazardous Matter or Toxic Substances

40 CFR 60.100-109, Subpart J, Standard of Performance for Petroleum Refineries

40 CFR 60.110b-117b, Subpart Kb, Standards of Performance for Volatile Organic Liquid Storage Vessels for which Construction, Reconstruction or Modification

40 CFR 60.590-593, Subpart GGG, Standard of Performance for Equipment Leaks of VOC in Petroleum Refineries.

NON-APPLICABLE REGULATIONS:

401 KAR 59:046, Selected New Petroleum Refining Processes and Equipment. This source has elected to be a synthetic minor which precludes the major source new source performance standards.

401 KAR 59:050, New Storage Vessels for Petroleum Liquids. All potential affected facilities have not previously demonstrated compliance since construction. The gasoline storage tanks are greater than the 40,000 gallon limit.

401 KAR 61:015, Existing Indirect Heat Exchangers. All potential affected facilities have not previously demonstrated compliance since construction and are therefore subject to new source performance standards.

40 CFR Subpart H, National Emission Standard for Organic Hazardous Air Pollutants for Equipment Leaks. The controlled PTE for single HAP emissions are below 10 tons per year and for combined HAPs below 25 tons per year.

40 CFR 63 Subpart CC, National Emissions Standard for Hazardous Air Pollutants from Petroleum Refineries. The controlled PTE for single HAP emissions are below 10 tons per year and for combined HAPs below 25 tons per year.

TYPE OF CONTROL AND EFFICIENCY

Based on the best engineering judgement, the flare and blowdown are estimated to control criteria and HAP emissions at or below 99%.

EMISSION FACTORS AND THEIR SOURCE

VOC/HAP emissions from storage tanks and process heaters are based on AP-42/and tanks program 4.01, respectively. Engineering estimates of these pollutants listed have also been calculated using a material balance method at the distillation tower.

ANYTHING UNUSUAL ABOUT THIS SOURCE:

This source has been out of operation for several years.

EMISSION AND OPERATING CAPS DESCRIPTION:

Wilco Refining, LLC has requested a synthetic minor permit based on the total amount of crude oil that can be processed. The crude oil storage tank pump and process heater limits the process feed rate to only 45.66 million gallons of crude oil per year. Based on this amount, their potential to emit VOCs comes to 90.4 tons per year.

CREDIBLE EVIDENCE:

This permit contains provisions which require that specific test methods, monitoring or recordkeeping be used as a demonstration of compliance with permit limits. On February 24, 1997, the U.S. EPA promulgated revisions to the following federal regulations: 40 CFR Part 51, Sec. 51.212; 40 CFR Part 52, Sec. 52.12; 40 CFR Part 52, Sec. 52.30; 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12, that allow the use of credible evidence to establish compliance with applicable requirements. At the issuance of this permit, Kentucky has not incorporated these provisions in its air quality regulations.

Group No.	Source Name	Process Unit	Stack No.	Operating Limit	Emission Limit (TPY)	Control Device	Applicable Regulations
01	Crude Oil Processing	1,2) Tanks 1,2 3) 1 Pump/Seals 4) 1 Valves 5) 44 Flanges	1 na	45,990,000 gallons/year	12.93 VOC	none	Subpart Kb Subpart GGG
02	Diesel Processing	1,2) Tanks 3,4 3) 2 Pump/Seals 4) 34 Valves 5) 40 Flanges	2	17,476,200 gallons/year	1.08 VOC	none	"
03	Kerosene Processing	1,2) Tank 5: W/B 3) 2 Pump/Seals 4) 34 Valves 5) 40 Flanges	3	2,759,400 gallons/year	0.63 VOC	none	"
04	Gasoline Processing	1,2,3) Tanks 6,7,8 4) 2 Pump/Seals 5) 39 Valves 6) 50 Flanges	4	13,245,120 gallons/year	45.47 VOC	Vapor recovery system	"
05	Resididual Processing	1,2) Tanks 9,10 3) 2 Pump/Seals 4) 33 Valves 5) 40 Flanges	5	14,716,800 gallons/year	0.6 VOC	none	"
06	Sulfur Treatment	1) Sulfur Removal Unit	6	none	na	none	Subpart J Subpart GGG
07	Distillation Process	1) Distillation tower	7	none	na	none	Subpart J Subpart GGG
08	Reforming process	1) Reforming unit 2) Pump/Seals 3) Valves 4) Flanges	8	none	na	none	Subpart J, Subpart GGG
09	Indirect Fired Process Heaters	1) Heater H1, NG 2) Heater H2, NG 3) Heater H3, C3	9	10 mmBtu/hr 5 mmBtu/hr 1 mmBtu/hr	na na na	none	Subpart J; 59:015 59:105
10	Truck Loading Operations	1) Crude Oil 2) Diesel 2) Kerosene 3) Gasoline	10	45,990,000 17,502,480 2,759,400 13,201,320 gallons/year	17.3 0.12 0.02 16.13	controlled* Vapor recovery system	Subpart GGG " " "
11	Haul road	Tanker trucks	na	none	na	wet suppressio n	

* - control device installation is pending; na - not applicable